

CHAPTER

# 2

## ARGUMENTS & INFERENCES

## So, an Argument THE CENTERPIECE OF LOGICAL REASONING

In Logical Reasoning, arguments are the single most important concept you need to understand on an in-depth level. We will spend a lot of this book talking about different mistakes in argumentation. We will learn to manipulate arguments. But first, you have to have a crystal clear understanding of what an argument is.



The most common type of stimulus in Logical Reasoning is the Argument. The second most common stimulus is the Premise Set. You will learn the tools to handle both of them in this chapter.

### ARGUMENTS ARE PREMISES AND CONCLUSIONS

Arguments are quite simple at their core. An argument is made up of two things: premises and conclusions.

**PREMISES SUPPORT CONCLUSIONS.**

Premises are the evidence.

**That's it.** Arguments are just premises and conclusions. They have a lot of complicated baggage that we'll introduce soon, but at their core, arguments are always this simple.

**CONCLUSIONS RELY ON PREMISES.**

Conclusions are the claim.

### HARK, A SIMPLE ARGUMENT

Imagine you're building a table made of blocks to keep a delicious piece of cake off the floor (you live a very interesting life in this example).

Your blocks are **solid**. They aren't going anywhere. These are your **premises**.

Your cake is squishy and **fragile**. It needs to be held up off the floor because it can't fend for itself. This is your **conclusion**.

{CAKE} ← **Conclusion (squishy claims)**

[BLOCK] [BLOCK] ← **Premises (solid facts)**

The cake is only safe from the floor because you arranged your blocks *exactly* right. Conclusions are worthless and delicious like this too. They can't keep themselves off the floor. If left to their own devices, conclusions would run amok on the floor and we'd never get anything done. **Conclusions need to be supported by premises to be worth anything.**

Let's dive into premises and conclusions. Make sure this sinks in. If you don't understand premises and conclusions, you won't be able to follow the rest of this book or succeed at LR.

## Premises STATEMENTS OF FACT

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Premises are just the facts, the evidence. They describe how the world is. We accept premises. We don't question their truth.

### THINGS PREMISES ARE

Premises are the building blocks that allow us to make interesting claims about the world.

Premises are the infrastructure of arguments.

Premises do the argument's heavy lifting.

### THINGS PREMISES ARE NOT

Premises are not questionable.

Premises are not dependent on the conclusion or one another.

Premises don't need anything to support them.

In the real world, we often argue by attacking the truth of our opponent's premises. For instance:

*"You said that we won't be late to the bonanza **because** you've never been late before and there's no traffic. But there is traffic! And you were late to another bonanza last week!"*

This example questioned the truth of two premises, being late before and no traffic. While this is fine to do in real life, the LSAT doesn't let you off that easy; it's way more awesome than that. **If you want to get the questions right, don't worry about debating the truth of the premises.** The correct answer almost never questions the truth of a premise. Instead, you should focus on how the premises fit together. That's what will lead you directly to the correct answer. Premises are defined by their *relationship* to the conclusion.

These words typically introduce premises:

### PREMISE INDICATORS

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*because*

*for*

*since*

*as*

*given that*

**Memorize this list.**

## Conclusions CLAIMY JUDGMENTS THAT ARE USUALLY WRONG

Conclusions are the judgments the author makes. They are the main event. Conclusions are built upon the arrangement of premises.

### THINGS CONCLUSIONS ARE

Conclusions are where the author goes out on a limb. The author takes what's been given in the premises and infers something new in the conclusion.

Conclusions are based on premises. They rely on the premises.

**Conclusions are the part of the argument you question.** They are where things get interesting.

### THINGS CONCLUSIONS ARE NOT

Conclusions are not necessarily ironclad. **The premises are usually not arranged well enough to prove the conclusion.**

Conclusions can't just live on their own. They are dependent on the premises.

#### REMEMBER!

Arguments are all about the **relationship** between the conclusion and its premises.

These words typically introduce conclusions:

#### CONCLUSION INDICATORS

<i>therefore</i>	<i>accordingly</i>	<i>consequently</i>	<i>so</i>
<i>thus</i>	<i>hence</i>	<i>it follows that</i>	

#### Memorize this list.

Here are a few examples of how the premise and conclusion indicators function:

*Monica claimed to have caused the extinction of the dinosaurs and everything Monica claims is always true. **Therefore**, Monica is responsible for the extinction of the dinosaurs.*

***Since** Monica claimed to have caused the extinction of the dinosaurs and everything Monica claims is always true, Monica is responsible for the extinction of the dinosaurs.*

Both these statements mean the exact same thing, even though the premise and conclusion indicators are different!

Use the premise and conclusion indicators to guide yourself through arguments. When indicators are present, they are a reliable way to identify argument parts. However, the aim of this book is to change the way you think. I don't want you to *just* perform a little seek-and-find game to locate the indicators on every stimulus. That would leave you to throw your hands up in frustration when the indicators are absent.

**The indicator words will not always be there to indicate what part of the argument every statement is.** Instead of just looking for indicator words, go deeper. Ask yourself about the personality of the statements. Are they facts or claims? This lets you engage with the argument on an analytical level, which is the key to success in Logical Reasoning.



No, but seriously, memorize your premise and conclusion indicators.

## Valid Conclusions & Invalid Conclusions

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Now that we have the basics of premises and conclusions, let's enter into the realm of good and bad. **Not all conclusions are created equal.**

### VALID CONCLUSIONS = PROVEN

Some conclusions are sturdily supported. We call these beautiful starships valid conclusions. A valid conclusion must be true, if its premises are true. Since we always assume our premises to be true, **a valid conclusion is one that must be true.** That's right; valid conclusions *have to be* true. They're provable. 100%. No question. No wiggle room.

Let's look at a few simple valid conclusions:

<b>PREMISE 1</b>	Avocados and gingerbread both contain <b>nitrogen</b> .
<b>PREMISE 2</b>	<b>Nitrogen</b> is an element.
<b>VALID CONCLUSION</b>	Avocados and gingerbread have an element in common.

**Notice the bolded overlapping term, nitrogen, in the two premises. This point of similarity is an interlocking point.** The interlocking point lets us create something new by combining both things we know about nitrogen into one sentence. That's what our valid conclusion did — it combined. This is a great introductory way to come up with valid conclusions: **Look for a common term between two premises and figure out what that repetition allows you to conclude.** In this case, I basically just replaced the word “nitrogen” in the first premise with the definition of nitrogen supplied in the second premise.

<b>PREMISE 1</b>	Rishad is <b>10 inches tall</b> .
<b>PREMISE 2</b>	Prejudice toward those <b>under 12 inches tall</b> is never justified.
<b>VALID CONCLUSION</b>	Prejudice toward Rishad is never justified.

This is a slightly more complex example of a valid conclusion. We don't see any exact phrases repeated between the premises, but we can see that the state of affairs from the first premise, being 10 inches tall, fits into the category outlined in the second premise. That's our bolded interlocking point. Since Rishad is 10 inches tall, he fits into the under 12 inches tall category and the judgment associated with that category applies to him. The conclusion just applies the “prejudice never justified” standard to Rishad.

<b>PREMISE 1</b>	Maya won't <b>eat grapefruit</b> .
<b>PREMISE 2</b>	Only those who always <b>eat grapefruit</b> will be committed to the mental institution.
<b>VALID CONCLUSION</b>	Maya will not be committed to the mental institution.

This is our most advanced example of a valid conclusion for now. The interlocking point here is more stealthy than in our previous two examples. Maya won't eat grapefruit and only those who always eat grapefruit go to the mental institution. By refusing to eat grapefruit, Maya doesn't let herself fall into the category of people who always eat

it, right? So, Maya is not in the always-eat category outlined in the second premise. Now, *only* the people in the always-eat category go to the mental institution. If Maya isn't in the category, she can't go.

Check out a simpler example for a second: Imagine that only people wearing red were allowed into a party. You show up wearing teal. Obviously, you aren't allowed into the party (unless you know someone on the inside... because life isn't nearly as fair as the LSAT). This Maya situation is exactly the same as the party example; it's just dressed in slightly fancier language. Our job as LSAT masters is to see through the language to the simple construct lying underneath.

Awesome! Now that we've walked through a few valid conclusions, let's zoom out a little bit. **On the LSAT, most conclusions are invalid**, meaning most arguments you'll encounter are invalid arguments. We'll get to invalid conclusions in a minute, but the valid conclusions we've been talking about are going to be a big part of our LSAT experience in another context. That's because **valid conclusions have a twin called an Inference**, which is not part of an argument and is much more frequently encountered on the LSAT. The same sentence can be called an Inference or a valid conclusion based solely on context.

### INFERENCES VS. VALID CONCLUSIONS

**Valid conclusions** are always presented as **part of an argument**, like so:

*Avocados and gingerbread both contain nitrogen. Since nitrogen is an element, avocados and gingerbread have an element in common.*

**Inferences**, on the other hand, are **not part of an argument**. Inferences are something we come up with ourselves from a Premise Set. This is what the same information would look like as an Inference:

*Avocados and gingerbread both contain nitrogen. Nitrogen is an element.*

**INFERENCE**

Avocados and gingerbread have an element in common.

**An Inference is a valid conclusion you design yourself, not a conclusion inside an argument.** Isn't it amazing how the exact same information can be two different things based only on context? The LSAT will often ask you to design an Inference from a Premise Set in the exact same way we just did. That Inference will be the correct answer to many questions.

### INVALID CONCLUSIONS = NOT PROVEN

**Invalid conclusions are the LSAT's bread and butter.** Seriously, the vast majority of our time in Logical Reasoning is spent handling invalid conclusions. There are approximately infinity ways to go wrong when making an argument, and they are all super funny and awesome. Let's start exploring invalid conclusions with the premises we used to create valid conclusions.

**PREMISE 1**

Avocados and gingerbread both contain nitrogen.

**PREMISE 2**

Nitrogen is an element.

**INVALID CONCLUSIONS**

Avocados and gingerbread are the same food.

Avocados and gingerbread taste the same.

Avocados and gingerbread have most things in common.

Avocados and gingerbread are similar.

Avocados and gingerbread are both natural.

Notice how I came up with a ton of invalid conclusions. To come up with an invalid conclusion, you just say whatever you feel. Don't worry about whether it's reasonable. The more unreasonable, the better! This is exactly what the test writers do with most stimuli containing arguments. They're just saying whatever they feel in the conclusion. In designing these invalid conclusions, I tried to not go too out there. I chose conclusions that someone could hypothetically come up with and believe.

Let's look at why each invalid conclusion is not ironclad proven. We'll do this by objecting to each conclusion. Our objections are designed to be super powerful; they call attention to a specific situation where the conclusion falls apart. These super-powered objections are called **Loopholes**.



Remember, pay special attention to every mention of Loopholes and Inferences. You're going to design plenty of these yourself soon.

**INVALID CONCLUSION**

**Avocados and gingerbread are the same food.**

**LOOPHOLE**

What if just because you have an element in common doesn't mean you're the same food? Avocados and gingerbread could be different in every other way.

**Avocados and gingerbread taste the same.**

What if having nitrogen in common doesn't necessarily affect taste at all?

**Avocados and gingerbread have most things in common.**

What if we only know they have one thing in common? Let's not generalize that out to a bunch more things.

**Avocados and gingerbread are similar.**

What if nitrogen is one of many elements in avocados and gingerbread? Having one element in common isn't enough to justify calling the two things similar. Everything else about them could be different.

**Avocados and gingerbread are both natural.**

What if the nitrogen in avocados and gingerbread isn't even naturally derived? And even if the nitrogen is natural, everything else in avocados and gingerbread could be artificial.

Take a second to notice the critical instinct present in these Loopholes. **We're questioning authority.** We're putting every conclusion to the "What if?" test. This is the attitude you'll have toward every argument in Logical Reasoning. **Valid conclusions aren't vulnerable to reasonable Loopholes. Invalid conclusions are.**

Now, let's look at our next example:

<b>PREMISE 1</b>	Rishad is 10 inches tall.
<b>PREMISE 2</b>	Prejudice toward those under 12 inches tall is never justified.
<b>INVALID CONCLUSIONS</b>	<p>Rishad is short.</p> <p>We can be prejudiced toward people over 12 inches tall.</p> <p>Rishad would be hurt by prejudice.</p> <p>Prejudice is a bad thing.</p> <p>We should be nice to Rishad.</p>

OK, let's explore why each of these conclusions is invalid:

<b>INVALID CONCLUSION</b>	<b>LOOPHOLE</b>
<b>Rishad is short.</b>	What if I'm talking about my cat named Rishad? In that case, Rishad is a perfectly normal height. <b>Always assume there is something being left out of what the author chooses to present to you.</b> What the stimulus doesn't say is almost more important than what it does say.
<b>We can be prejudiced toward people over 12 inches tall.</b>	What if we don't know anything about people over 12 inches tall? The second premise only gives us information about what to do with those under 12 inches tall. We have no clue what the rules are for people over 12 inches tall. Never assume the opposite judgment holds for the opposite of the group being discussed.
<b>Rishad would be hurt by prejudice.</b>	What if we can't predict Rishad's feelings? We know that prejudice toward Rishad wouldn't be justified, but we don't know what his reaction would be to that prejudice. We're not allowed to fill in these gaps for the author.
<b>Prejudice is a bad thing.</b>	What if prejudice is good in this fantasy world? Rishad could live in a sci-fi dystopia for all we know. From our two premises, we have no information on how good or bad prejudice is. We only know about one case when prejudice is not justified. The <i>premises</i> have to prove the conclusion; outside knowledge about prejudice can't lend a helping hand.
<b>We should be nice to Rishad.</b>	What if lack of prejudice doesn't mean we have to be nice to Rishad? We know that we shouldn't be prejudiced against Rishad, but we could just ignore Rishad's height and choose to like or dislike him based on his merits as a human/cat.

OK, last example:

**PREMISE 1**

Maya won't eat grapefruit.

**PREMISE 2**

Only those who always eat grapefruit will be committed to the mental institution.

**INVALID CONCLUSIONS**

Maya will be committed to the mental institution.

Maya has no mental health issues.

The number of people committed to mental institutions is small.

Only those who love grapefruit will be committed to the mental institution.

Maya has great taste in food.

Now, let's see why these aren't valid.

**INVALID CONCLUSION**

**Maya will be committed to the mental institution.**

**Maya has no mental health issues.**

**The number of people committed to mental institutions is small.**

**Only those who love grapefruit will be committed to the mental institution.**

**Maya has great taste in food.**

**LOOPHOLE**

What if Maya has disqualified herself from being committed? We only commit people who always eat grapefruit. Maya doesn't do that, so she doesn't fit into the category of people who get committed.

What if having mental health issues is separate from being committed to a mental institution? Confusing two ideas like this is exactly the kind of trick the LSAT often plays.

What if we don't know how many people always eat grapefruit? It could, sadly, be a large group of people. And even if we knew how many people always eat grapefruit, we still wouldn't know the number committed: Eating grapefruit is only a minimum qualification. It doesn't guarantee admission.

What if loving grapefruit and always eating grapefruit are not necessarily the same thing? Maybe the people always eating it are just starving to death and actually hate grapefruit.

What if not liking grapefruit doesn't necessarily mean you have great taste? This conclusion, while undoubtedly true in real life, is not provable. We don't have any premises about what's great.



Valid conclusions are proven by their premises. Invalid conclusions aren't proven by their premises. Loopholes are how we attack invalid conclusions.

Notice how all of the invalid conclusions took something for granted, whether it was that being 10 inches tall is short or that refusing grapefruit means you have great taste in food. In real life, you could make the argument that these things are true, but when you bring these kinds of **assumptions** into LSAT arguments, you are walking on shaky ground. We call out this shaky ground by creating objections called **Loopholes**. We have a whole chapter on assumptions and Loopholes coming up soon, so bookmark this concept for now. It is one of the most important topics in Logical Reasoning.